DOCKET FILE COPY ORIGINAL

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Federal-State Joint Board on	)	CC Docket No. 96-45
Universal Service	)	
	)	

To: Joint Board

REPLY COMMENTS OF THE U.S. NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE

The Honorable Jeanne Hurley Simon,
Chairperson
U.S. National Commission on Libraries and Information Science
1110 Vermont Ave., N.W.
Suite 820
Washington, D.C. 20005
(202) 606-9200

Dated: 7 May 1996

TABLE OF CONTENTS

List of Tables

1.) Summary of NCLIS Reply Comments

The U.S. National Commission on Libraries and Information Science is pleased to provide the Federal Communications Commission these reply comments in the matter of the Federal-State Joint Board on Universal Service (CC Docket No. 96-45).

This section briefly summarizes several major points relating to the Joint Federal-State Board's consideration of universal service support mechanisms assuring that libraries have access to advanced information and telecommunications services at discounted rates. The NCLIS reply comments are based on preliminary analysis of the results of the NCLIS 1996 survey of public libraries and the Internet. This survey was conducted from January-March 1996 using a sample of public libraries in the U.S. selected from a universe file maintained by the National Center for Education Statistics, Office of Education Research and Improvement at the U.S. Department of Education.

The National Commission is providing the Joint Federal-State Board with the results of preliminary survey analysis at this time in response to the 7 May deadline for submission of reply comments to Notice of Proposed Rulemaking. The National Commission expects that additional information from more extensive analysis of the results from the NCLIS 1996 survey of public libraries and the Internet will be available in the next few weeks. This information is directly relevant to the development of universal support mechanisms for libraries. NCLIS plans to provide the Joint Federal-State Board with additional material reflecting more extensive analysis of survey results.

NCLIS Commissioners would welcome the opportunity to meet with FCC staff and with the members of the Joint Federal-State Board to provide additional information related to these reply comments and further analysis of NCLIS survey results in relation to the provision of special and core services for universal service support for eligible libraries.

The following points summarize the National Commission's reply comments and emphasize the need for universal service mechanisms that allow libraries to receive advanced information and telecommunication services in the most dependable and straightforward fashion in order to address serious discrepancies relating to levels of public library Internet service, types of

Internet connectivity, the costs for Internet, and in the provision of Internet access services to the public.

- NCLIS 1996 survey results indicate a 113% overall increase (from 20.9% to 44.6%) in public library Internet connectivity since 1994. These findings illustrate an extremely rapid rate of growth in public library Internet-connectivity.
- Preliminary survey analysis indicates public library Internet connectivity discrepancies based on size of population served. These discrepancies appear to have increased between 1994 and 1996, despite overall increases in public library Internet connectivity.
- Public libraries serving populations under 5,000 in 1996 are significantly (58.6%) less likely to be connected to the Internet than those libraries serving larger populations from 100,000 to 1 million +.
- Preliminary survey analysis indicates significant regional differences in public library Internet-connectivity and Internet-based service offerings.
- 39.6% of the 55.4% of public libraries without Internet connection indicate no plans for connecting to the Internet in the next 12 months.
- For those public libraries reporting no Internet-connections in 1996, public libraries serving smaller populations are more likely not be planning Internet connection in the next 12 months.
- Preliminary survey analysis indicates that U.S. public library Internet connectivity could exceed 60% by 1997.
- The NCLIS surveys of public library Internet involvement reveal discrepancies related to
    - $\Rightarrow$ the extent of connectivity
    - $\Rightarrow$ the type of connectivity
    - $\Rightarrow$ connectivity costs, and
    - $\Rightarrow$ the provision of Internet public access services.
- In smaller communities of 25,000 or less, the public library may provide the only means for the public Internet access. If public libraries serving these smaller populations are not connected to the Internet, residents may lack any means of public Internet access.

2.) Introduction

The U.S. National Commission on Libraries and Information Science (NCLIS) was established by P.L. 91-345 (19 July 1970) to conduct studies, surveys, and analyses, and to appraise the adequacies and deficiencies of current library and information services. The Commission advises the President and the Congress on the implementation of national policies related

to libraries and information services. Consistent with this statutory mandate, NCLIS filed Comments before the Federal Communications Commission (CC Docket No. 96-45) on 8 April 1996 in the Matter of Federal-State Joint Board on Universal Service in response to Notice of Proposed Rulemaking and Order Establishing Joint Board before the FCC.

The National Commission's comments to the Federal-State Joint Board on Universal Service transmitted findings from NCLIS 1994 survey research of the extent of public library involvement with the Internet[1]. NCLIS' comments also transmitted information from NCLIS 1995 research into the cost elements, cost categories, and cost models for public libraries and National Information Infrastructure (NII) technologies[2].

The comments filed before the Joint Federal-State Board on 8 April 1996 indicated that the National Commission would provide preliminary analysis and results from a national sample survey of libraries conducted in early 1996 in a subsequent reply comment filing. The NCLIS study was conducted to determine the current state of public library involvement with the Internet and to identify changes since the 1994 study. Information from the 1996 study provides baseline indicators of current public library involvement with networking technologies and with advanced telecommunications services. NCLIS' initial comments to the Joint Federal-State Board indicated that analysis of responses from the 1996 survey would provide detailed statistics for consideration in establishing mechanisms for achieving the principles of universal service. The areas that the 1996 survey results address were cited as:

- The percentage of public libraries connected to the Internet in 1996.
- Comparison of the percentage of public libraries connected to the Internet 1994-1996.
- Projection of the percentage of public libraries that are not now connected to the Internet that are planning Internet connections over the next 12 months.
- The percentage of public libraries that are connected to the Internet that offer public access to network services.
- The percentage of public libraries that are connected to the Internet that have text-based and graphical-based browsing capabilities.

---

[1] National Commission on Libraries and Information Science. *Public Libraries and the Internet: Study Results, Policy Issues, and Recommendations.* [Charles R. McClure, John C. Bertot, and Douglas Zweizig]. Washington, D.C.: NCLIS, June 1994.

[2] National Commission on Libraries and Information Science. *Internet Costs and Cost Models for Public Libraries* [Charles R. McClure, John C. Bertot, and John C. Beachboard]. Washington, D.C.: NCLIS, June 1995.

3.) Preliminary analysis of results from 1996 NCLIS study of public libraries and the Internet

An overview of the results of studies that the U.S. National Commission on Libraries and Information Science (NCLIS) has sponsored on public libraries and the Internet provides background for the National Commission's reply comments to the Federal Communications Commission's Notice of Proposed Rulemaking on Universal Service (CC Docket No. 96-45).

This section of the National Commission's reply comments contains seven subsections offering preliminary analysis of the results of the NCLIS 1996 survey of public libraries and the Internet as related to universal service issues. A total of 19 tables provide survey results relevant to the various subsection topics. These tables result from preliminary analysis and should be considered as indicators of information that will result from more extensive analysis to be performed in the next several weeks.

The subsections cover topics related to current connectivity, connectivity plans, public access to Internet services, Internet expenditures, connection type, connection service providers, and public access Internet terminals.

The first NCLIS study, in 1994, found that 20.9% of the nation's libraries reported Internet connections. Preliminary analysis of the 1996 NCLIS study results indicates that the percentage of public libraries connected to the Internet has increased to 44.6%.

A. Public Library Internet Connectivity: 1994 - 1996

Table 1 compares the percentage of public libraries reporting connections to the Internet in 1994 with 1996 by population of legal service area. Information included in Table 1 resulted from public libraries responding to the following question (See Appendix B question 7):

Is your library currently connected to the Internet in any way?
□*YES*
□*NO*

7

Table 1
Public Library Internet Connectivity by Population Served 1994-1996

Population of Legal Service Area[3]	% Public Libraries Connected		
	1994	1996	% change
1 million +	77.0%	82.0%	+5.0%
500,000-999,999	64.0%	93.1%	+29.1%
250,000-499,999	76.0%	96.1%	+20.1%
100,000-249,999	54.4%	88.2%	+33.8%
50,000-99,999	43.7%	75.0%	+31.3%
25,000-49,999	27.6%	73.1%	+45.5%
10,000-24,999	23.2%	53.1%	+29.9%
5,000-9,999	12.9%	40.6%	+27.7%
Less than 5,000	13.3%	31.3%	+18.0%
Total % public libraries connected	**20.9%**	**44.6%**	**+23.7%**

The NCLIS 1994 and 1996 survey results show that by increasing from 20.9% to 44.6%, public library Internet connectivity increased 113%. The results of the 1996 survey illustrate that public library Internet connectivity is growing at an extremely rapid rate. As more public libraries establish Internet connections and as public libraries are increasingly involved with electronic information services that require high-speed broadband telecommunication services, access to affordable advanced information and telecommunication services will become increasingly important for public libraries to extend new electronic network service access to wider communities. Universal service mechanisms for providing public libraries with access to advanced telecommunication and information services are critical if public libraries are to provide the public with access to these new services effectively.

The NCLIS public library surveys of Internet involvement reveal discrepancies in the extent of public library Internet connectivity based on population size. Despite an 18% increase in Internet connectivity for public libraries serving population areas under 5,000 between 1994 and 1996, public libraries serving populations of under 5,000 in 1996 are significantly (58.6%) less likely to be connected to the Internet than those libraries serving larger populations from 100,000 to 1 million +.

---

[3] Population of legal service area is the number of people in the geographic area for which a public library has been established to offer services and from which (or on behalf of which) the library derives income, plus any areas served under contract for which the library is the primary service provider.

8

The discrepancy in the rate of public library Internet connectivity between smaller and larger population areas represents a 4% increase over 1994. The Internet-connectivity gap between public libraries serving larger and smaller communities appears to have increased between 1994 and 1996, despite significant overall increases in public library Internet connectivity. It may be that variations in telecommunication and information service rates for different size population groupings contribute to different levels of public library connectivity to the Internet.

Geographic regional[4] differences in public library Internet connectivity are also evident between 1994 and 1996. Survey results for public library Internet connectivity by region are included in Table 2. While increases in public library connectivity between 1994 and 1996 vary between 20.4% and 29.1% among the four regions, the NCLIS 1996 survey results reveal a connectivity increase of 29.1% for public libraries in the Midwest (from 15.4% to 44.5%) and a 20.4% increase for public libraries connecting to the Internet in the South (from 18.6% to 39%).

Table 2
Public Library Internet Connectivity by Region 1994-1996

Region	1994	1996	% change
Midwest	15.4%	44.5%	+29.1%
Northeast	25.9%	51.1%	+25.2%
South	18.6%	39.0%	+20.4%
West	28.2%	53.7%	+25.5%
Overall	20.9%	44.6%	+23.7%

While connectivity comparisons between geographic regions in 1994 showed a 12.8% discrepancy between the Midwest (15.4%) and the West (28.2%), comparisons between regions in 1996 shows a larger 14.7% discrepancy between the South (39%) and the West (53.7%). These results indicate that public libraries in the four regions are not connecting to the Internet at the same uniform rate. Different telecommunication and information service rate structures may contribute to the varying different levels of public library connectivity to the Internet in the various geographic regions. Provisions for mechanisms to assure achievement of universal service can address the discrepancies between public library Internet-connectivity levels and rate in the various regions of the Nation.

---

[4] Appendix A provides a list of states included in regional groupings.

B. Public Libraries not now using Internet that are planning for Internet connectivity in the next 12 months

The rapid increasing rate of public library Internet connectivity is further reinforced by responses to the 1996 NCLIS survey question regarding plans for those public libraries that are not now connected to the Internet to connect over the next 12 months for both staff and public access. The 1996 NCLIS survey posed the following questions (See Appendix B question 8):

*If your library **does not now have** any access to the Internet, does your library **plan to** connect to the Internet in any way in the next 12 months?*
☐ *YES, for library staff use only*
☐ *YES, for library staff use AND public access*
☐ *NO Internet connection planned in the next 12 months*

Survey responses to this question are presented in Table 3. This Table provides public library responses arranged by size of population served:

Table 3
Internet Plans for Public Libraries Not Now Connected by Population Served

Population of Legal Service Area	% Planning Connections		
	Yes/Staff	Yes/Public	No Plans
1 million +	0.0%[5]	0.0%	0.0%
500,000-999,999	2.4%	6.9%	0.0%
250,000-499,999	2.0%	4.2%	0.0%
100,000-249,999	4.7%	12.9%	0.9%
50,000-99,999	7.5%	13.4%	4.3%
25,000-49,999	9.0%	12.5%	8.1%
10,000-24,999	10.4%	20.6%	16.9%
5,000-9,999	11.0%	26.8%	22.2%
Less than 5,000	8.3%	26.6%	31.3%
Public Library Connectivity Plans	**16.3%**	**40.4%**	**39.6%**

Of those public libraries (55.4%) that reported no Internet connection in 1996, 16.3% plan to establish connections in the next 12 months for library staff use only. In addition, 40.4% of public libraries with no Internet connection in 1996 responded to the survey indicating plans to provide public access Internet

---

[5] Those public libraries that are not now connected to the Internet and did not respond or responded that they are not planning to connect to the Internet are represented by 0%.

services in the next 12 months. More public libraries responded that they were planning to provide public access to Internet-related services that those public libraries indicating plans for involving staff with Internet services in the next year.

From preliminary analysis of the 1996 survey results, it appears that the percentage of U.S. public libraries connected to the Internet could well reach over 60% by 1997. This rapid proliferation of public library connectivity to the Internet and, specifically, the large number of public libraries planning to provide public access to Internet services, focuses attention on public library costs associated with providing public access to advanced information services requiring advanced telecommunication services in support of Internet.

Table 4 presents preliminary analysis of the NCLIS 1996 survey results by geographic region for responses to the question regarding plans for Internet connections for those public libraries that indicated that they are not now accessing the Internet in any way.

Table 4
Internet Plans for Public Libraries Not Now Connected by Region

Population of Legal Service Area	% Planning Connections		
	Yes/Staff	Yes/Public	No Plans
Midwest	11.0%	20.0%	22.4%
Northeast	8.9%	21.6%	18.8%
South	8.2%	25.5%	29.8%
West	4.1%	27.1%	14.3%

Differences between public library Internet-connectivity among the various geographic regions in 1996 is one indication of disparity in public library Internet involvement. Table 4 shows that for public libraries located in the South that report no current Internet use, 29.8% report no plans for connecting to the Internet in the next 12 months. This is to be contrasted with only 14.3% of public libraries located in the West and that are not currently using Internet that report no current plans for connecting to the Internet.

Projections of planned Internet connectivity levels for public libraries in the four regions seem to indicate that connectivity differences between regions are likely to lessen in the next year. However, achieving more comparable levels of public library Internet connectivity among different geographic regions requires careful implementation of the universal service provisions of the 1996 Telecommunications Act for schools and libraries.

C.) Internet-Connected Public Libraries Providing Public Access to Internet Services

For those public libraries that report that they are currently providing public access to Internet services in 1996, those serving larger populations are more likely to provide public Internet access services using graphical interfaces (WWW) than those public libraries serving smaller communities. The 1996 NCLIS survey posed the following questions (See Appendix B question 16):

*Please indicate whether your library **provides patrons the following types of Internet** services AND whether your library **charges patron fees**[6] for such services:*
□E-mail accounts (e.g., e-mail services)
□Newsgroup services (e.g., access to newsgroup readers)
□Text-based World-Wide Web browsing (e.g., using Lynx software)
□Graphical World-Wide Web browsing (e.g., using Netscape, or Mosaic software)
□Gopher-based resource location
□Other (please specify)

NCLIS 1996 survey information about the types of public access Internet services provided by Internet-connected public libraries is summarized in Table 5:

Table 5
Public Access Internet Services Provided by Internet-Connected Public Libraries by Population Served

Population	E-mail	NewsGroup	WWWtext	WWWgraphic	Gopher Svcs
1 million +	13.9%	13.0%	33.8%	54.6%	32.9%
500,000-999,999	11.3%	11.3%	46.3%	44.7%	45.7%
250,000-499,999	10.0%	8.8%	39.8%	33.9%	35.0%
100,000-249,999	10.3%	20.3%	37.9%	42.7%	34.8%
50,000-99,999	4.8%	15.5%	28.5%	29.2%	29.4%
25,000-49,999	9.2%	13.2%	25.1%	28.1%	24.3%
10,000-24,999	9.8%	13.6%	23.0%	27.6%	24.8%
5,000-9,999	10.0%	5.7%	15.9%	17.5%	14.4%
Less than 5,000	12.1%	9.6%	15.7%	13.9%	17.8%
Overall	**9.9%**	**11.6%**	**22.2%**	**23.6%**	**22.6%**

---

[6] Preliminary analysis of public library responses to this portion of the survey question were not completed in time for submission of this reply comment. Results of further analysis of responses to this particular question, along with others, will be forthcoming in the next several weeks.

Those public libraries that provide public access to Internet and that serve the smallest legal service area populations (less than 5,000) are 40.7%% less likely to offer advanced WWW graphical services than Internet-connected public libraries serving populations of one million +. Internet-connected public libraries serving smaller communities are more likely to provide public access to text-based Internet services than to the more advanced multi-media graphical WWW Internet services. The range and extent of text-based Internet services are insufficient to allow Internet-connected public libraries to provide the full range of interactive multi-media services that are rapidly becoming available. Residents of smaller communities should be afforded the same range of public Internet access capabilities as those who use the services of those Internet-connected public libraries serving larger populations.

Table 6 presents information regarding public access Internet services provided by Internet-connected public libraries according to region:

Table 6
Public Access Internet Services Provided by Internet-Connected Public Libraries by Region

Population	E-mail	NewsGroup	WWWtext	WWWgraphic	Gopher Svcs
Midwest	9.4%	8.0%	15.7%	21.4%	16.5%
Northeast	7.4%	9.1%	22.7%	16.9%	23.3%
South	9.7%	11.8%	23.4%	28.4%	21.5%
West	18.6%	28.1%	37.9%	40.9%	39.5%

Internet-connected public libraries located in the West are twice as likely to provide patron access using graphical WWW browsing than public libraries using Internet that are located in the Northeast or the Midwest.

D.) Internet-Connected Public Library Expenditures for Internet

The 1996 NCLIS survey of public libraries and the Internet requested information about current information technology expenditures associated with providing Internet-related services for staff and patrons. These questions were formulated using the results of the National Commission's 1995 study of *Internet Costs and Cost Models for Public Libraries.*[7] Because public libraries

---

[7] National Commission on Libraries and Information Science. *Internet Costs and Cost Models for Public Libraries* [Charles R. McClure, John C. Bertot, and John C. Beachboard]. Washington, D.C.: NCLIS, June 1995.

indicated difficulties with providing actual cost information regarding Internet connectivity, the 1996 NCLIS survey posed the following questions to collect information about the percentage of expenditures related to (See Appendix B question 12):

*Please **estimate** the percentage of total library operating expenditures for all information technologies (IT) associated with providing Internet-related services for staff and patrons for the last completed fiscal year AND **estimate** the amount of increase or decrease you anticipate for the next fiscal year for these Internet costs:*
☐System/server hardware costs (e.g., workstations, servers)
☐Software costs (e.g., operating systems -- Unix -- applications software -- WordPerfect)
☐Communications hardware/fees (e.g., routers, modems, long distance charges)
☐Training and education costs (for staff and patrons)
☐Content/resource development, Web home page development)
☐Program planning/management/staffing costs (e.g., RFP development/analysis, consultant fees)
☐Other (please specify)

Tables 7 and 8 provide information about Internet-connected public library estimated percentage of operating expenditures for information technology associated with providing Internet-related services for staff and patrons. Further analysis of the survey results will provide additional detail regarding these expenditures. Information from the 1993 Public Libraries in the United States annual survey of public libraries conducted by the National Center for Education Statistics indicates that total public library operating expenditures for fiscal year 1993 were $4,704,700,000. Of this total, 19.7% represented expenditures other than those for staff and collection. Thus, some portion of $926,825,900. was available for Internet-connected public library expenditure for information technology associated with providing Internet-related services for staff and patrons.

Table 7
Estimated % of IT Operating Expenditures for Information Technology for Internet-Connected Public Libraries

	Estimated %	Don't Know
Midwest	3.8%	38.5%
Northeast	3.4%	25.6%
South	5.5%	21.9%
West	6.1%	28.7%
Overall	**4.2%**	**30.2%**

Responses to questions concerning percentage of IT operating expenditures for Internet-related costs are presented in Table 8 by region and in Table 9 by population served.

Table 8
Estimated % of IT Operating Expenditures for Internet-Connected Public Libraries by Region:
1) System/Server Hardware, 2) Software Costs, 3) Communications Hardware/Fees,
4). Staff/User Training and Education, 5) Content/Resource Development,
6) Program Planning/Management/Staffing Costs, and 7) Other

Region	1)Sys Hdwr	2)Software	3)Com Fee	4)Tng & Ed	5) Cnt Dvl	6)Plng/Mgnt	7)Other
Midwest	12.1%	6.1%	9.7%	3.6%	2.0%	2.1%	2.7%
Northeast	9.3%	3.3%	5.2%	2.4%	1.9%	1.6%	2.7%
South	17.0%	17.0%	8.7%	4.2%	2.1%	3.1%	3.4%
West	13.2%	10.0%	12.0%	4.3%	2.2%	3.3%	3.5%
Overall	33.0%	15.6%	22.7%	9.1%	5.5%	6.1%	8.0%

Regional differences in the percentage of IT operating expenditures for Internet-connected public libraries for communications hardware/fees indicate significant discrepancies. Public libraries in the Northeast report communications costs representing 5.2% of IT operating expenditures for Internet-connected public libraries, while public libraries in the West indicate 12% of IT operating expenditures for Internet-connected public library communications costs. Higher expenditures for communication hardware/fees for public libraries in the West may be attributable to the larger percentage of public libraries in the West region that provide public access to WWW graphical browsing Internet services (40.9% see Table 6). These Internet-connected public libraries require faster leased-line telecommunication connection speeds (30.8% for 56K and 12.9% T1 see Table 12) that may constitute higher expenditures.

It appears that public libraries offering public access to more advanced Internet services present quite different cost/expenditure patterns than those public libraries that do not provide such advanced services. These varying patterns are also evident in the responses included in Table 9. Internet-connected public libraries serving populations of 25,000 and above report an average of 11.18% of IT operating expenditures for communications hardware/fees, while Internet-connected public libraries serving populations of under 25,000 report an average of 4.3% of IT operating expenditures for communications hardware/fees. This difference may be attritable to the prevalence of dial-up services in the latter and of leased-line services in the former.

Table 9
Estimated Percentage of IT Operating Expenditures for Internet-Connected Public Libraries by Population Served

1) System/Server Hardware, 2) Software Costs, 3) Communications Hardware/Fees,
4). Staff/User Training and Education, 5) Content/Resource Development,
6) Program Planning/Management/Staffing Costs, and 7) Other

Population	1)Sys Hdwr	2)Software	3)Com Fee	4)Tng & Ed	5) Cnt Dvl	6)Plng/Mgnt	7)Other
1 million +	25.7%	6.9%	10.2%	2.0%	1.7%	6.5%	6.9%
500,000-999,999	8.4%	4.2%	11.5%	4.7%	3.1%	4.5%	4.9%
250,000-499,999	16.0%	16.0%	12.3%	2.4%	2.0%	4.7%	8.9%
100,000-249,999	12.0%	12.0%	11.2%	3.9%	1.5%	2.8%	4.0%
50,000-99,999	17.3%	17.3%	10.4%	4.0%	4.0%	3.9%	4.3%
25,000-49,999	19.0%	19.0%	11.5%	5.2%	2.4%	1.8%	2.9%
10,000-24,999	14.9%	14.9%	7.9%	4.6%	3.1%	3.9%	5.0%
5,000-9,999	10.1%	10.1%	2.7%	1.5%	0.3%	1.9%	2.4%
Less than 5,000	60.2%	5.6%	2.7%	2.2%	1.4%	0.5%	0.5%
Overall	**33.0%**	**15.6%**	**22.7%**	**9.1%**	**5.5%**	**6.1%**	**8.0%**

Internet-connected public libraries reported that the highest percentage of IT operating expenditures related to the Internet were in support system/server hardware (33%) costs and were followed by the next highest percentage of IT operating expenditures which were for communications hardware/fees (22.7%).

High initial system/server hardware investments are unlikely to recur annually, but annual telecommunication service fees will likely increase in direct relation to increases in patron use of more multi-media-based Internet-related services. Further analysis of the survey results are expected to provide an indication of anticipated public library expenditures related to the various cost categories. Special analysis of public libraries' responses to anticipated telecommunication fee expenditures will provide additional information related to universal service concerns.

E.) Type of Public Library Internet Connections for public libraries currently connected to the Internet

The NCLIS 1996 survey asked public libraries to respond to the following question (see Appendix B question 13):

*What type of connection to the Internet AND **maximum connection speed** does your library have?*
DIAL UP
☐ *Terminal access (e.g., via text only [non-graphical] access)*
☐*Internet gateway access (e.g., via commercial on-line provider such as America On-Line and CompuServe)*
☐ *Workstation SLIP (Serial Line Internet Protocol) or PPP (Point to Point Protocol) access*
☐ *Other (please specify)*
☐*None*
LEASED LINE
☐*On-line Public Access Catalog (OPAC) Gateway*
☐*Local Area Network (LAN) access*
☐ *Other (please specify)*
☐*None*

Table 10
Internet-Connected Public Library Internet Dial-Up Connection Type by Region:

1)Terminal access, 2) Internet Gateway access, 3) Serial Line Internet Protocol/Point to point Protocol, 4). Other

Region	Terminal	Gateway	SLIP/PPP	Other
Midwest	45.9%	22.1%	25.0%	6.0%
Northeast	56.7%	15.6%	21.5%	5.5%
South	39.6%	31.0%	43.9%	5.0%
West	43.9%	19.1%	42.9%	4.7%
Overall	**46.2%**	**20.2%**	**28.4%**	**5.3%**

The majority (46.2%) of public libraries reporting current connectivity to the Internet use terminal non-graphical text access. Table 11 shows the fastest dial-up speed of connection for those public libraries reporting Internet connections:

Table 11
Internet-Connected Public Library Dial-Up Connection Speed by Region:

Region	9600	14400	28800	Other Speed
Midwest	23.8%	25.9%	24%	3.3%
Northeast	29.1%	17.5%	15.4%	4.4%
South	17.8%	25.4%	33.5%	2.9%
West	13.6%	34.5%	25.4%	3.7%
Overall	**31.5%**	**32.6%**	**31.0%**	**4.9%**

Table 12 provides information about Internet-connected public library responses concerning type of leased-line connection by region. Table 13 provides information about public library dial-up Internet connection by population served.

Table 12
Internet-Connected Public Library Leased-Line Connection Type by Region

Region	OPAC	LAN	Other	56K	T1	T3	Other
Midwest	23.1%	17.7%	6.9%	21.2%	3.3%	0.0%	2.4%
Northeast	23.9%	10.4%	6.4%	17.9%	3.1%	0.0%	2.5%
South	23.1%	22.1%	5.0%	20.0%	8.1%	0.0%	3.1%
West	23.6%	34.3%	8.0%	30.8%	12.9%	0.0%	2.9%
Overall	**48.7%**	**37.6%**	**13.7%**	**72.8%**	**18.2%**	**0.0%**	**9.0%**

Table 13
Internet-Connected Public Library Internet Dial-Up Connection Type by Population Served

1)Terminal access, 2) Internet Gateway access, 3) Serial Line Internet Protocol/Point to point Protocol, 4). Other

Population	Terminal	Gateway	SLIP/PPP	Other
1 million +	62.0%	40.8%	55.1%	0.0%
500,000-999,999	60.0%	15.9%	43.1%	3.0%
250,000-499,999	63.8%	21.0%	39.4%	4.2%
100,000-249,999	42.8%	26.3%	41.5%	5.0%
50,000-99,999	42.6%	26.5%	39.4%	8.9%
25,000-49,999	48.5%	21.0%	39.1%	2.2%
10,000-24,999	49.8%	15.0%	33.6%	4.3%
5,000-9,999	45.1%	13.9%	30.3%	4.6%
Less than 5,000	49.7%	26.1%	13.9%	8.0%
Overall	**46.2%**	**20.2%**	**28.4%**	**5.3%**

Table 14 provides information about public library Internet connection dial-up speed by population served. Generally, those Internet-connected public libraries serving larger population areas by dial-up connections have faster speed telecommunications line connectivity than those Internet-connected public libraries serving smaller populations. This discrepancy is especially noticeable when comparing the following:

1.) Internet-connected public libraries serving populations of 1 million + with dial-up connection speeds of 28800 (47.3%)

2.) Internet-connected public libraries serving populations under 5000 with dial-up connection speeds of 9600 (32.1%).

Discrepancies of this nature illustrate the gap between speed of Internet dial-up connectivity for public libraries serving different size populations.

Table 14
Internet-Connected Public Library Dial-Up Connection Speed by Population Served

Population	9600	14400	28800	Other Speed
1 million +	7.4%	21.3%	47.3%	6.5%
500,000-999,999	8.3%	21.5%	43.2%	0.0%
250,000-499,999	17.6%	31.8%	28.6%	2.0%
100,000-249,999	12.3%	29.8%	33.0%	3.2%
50,000-99,999	16.4%	24.7%	29.4%	4.0%
25,000-49,999	25.1%	20.2%	27.0%	6.6%
10,000-24,999	16.9%	23.9%	29.1%	2.7%
5,000-9,999	24.7%	21.3%	25.7%	4.7%
Less than 5,000	32.1%	25.9%	9.0%	2.4%
Overall	**31.5%**	**32.6%**	**31%**	**4.9%**

These same factors are reflected in the survey results included in Table 15 which show discrepancies in Internet-connected public libraries using leased-line connectivity. Advanced highspeed leased line connectivity for 56K and T1 are more prevalent for Internet-connected public libraries serving communities over 250,000 (an average of 36.5% for T1 leased-line connections and an average of 37.9% for 56K leased-line connections). Table 15 also shows the high percentage of Internet-connected public libraries serving larger populations that have OPAC gateway access to Internet services for patrons compared with lower percentages for Internet-connected public libraries serving smaller communities.

Table 15
Internet-Connected Public Library Leased-Line Connection Type by Population Served

Population	OPAC	LAN	Other	56K	T1	T3	Other
1 million +	55.1%	48.6%	18.0%	33.8%	34.7%	0.0%	6.9%
500,000-999,999	64.8%	62.1%	13.4%	35.4%	47.5%	0.0%	0.0%
250,000-499,999	52.6%	40.1%	9.1%	44.5%	27.3%	0.0%	4.8%
100,000-249,999	31.4%	32.2%	9.9%	32.2%	15.0%	0.0%	6.5%
50,000-99,999	35.8%	24.7%	5.1%	29.8%	14.3%	0.0%	2.6%
25,000-49,999	31.2%	22.1%	9.3%	31.6%	7.5%	0.0%	2.1%
10,000-24,999	28.1%	14.9%	9.1%	24.7%	2.3%	0.0%	3.1%
5,000-9,999	17.8%	4.9%	11.4%	14.4%	0.0%	0.0%	2.9%
Less than 5,000	8.9%	15.9%	0.0%	8.7%	0.0%	0.0%	1.4%
Overall	48.7%	37.6%	13.7%	72.8%	18.2%	0.0%	9.0%

F.) Type of Internet-Connected Public Library Internet Connection Service Provider

Tables 16 and 17 provide information about Internet-connected public libraries responding to the following survey question (see Appendix B question 14):

What type of Internet connection provider does your library use?
□*Local/state government organization (e.g., county/state information services department)*
□*Commercial provider (e.g., PSI, Delphi, America On-Line, CompuServe, etc.)*
□*Local educational organization (e.g., community college or university)*
□*Free-net (e.g., a community run network such as Cleveland Freenet, Big Sky)*
□*State library network (e.g., a state-wide network run by the state library agency such as Maryland's Sailor network, Nebrask@ Online, etc.)*
□*Regional/statewide network provider (e.g., NYSERNet, Solinet, NorthWestNet, etc.)*
□*Other (please specify)*

Overall, the type of Internet-connected public library Internet connection provider included in Table 16 appear to be spread rather evenly between the various local, regional, educational, state library, and commercial connection provider types. Comparisons between regions, however, highlight differences that may indicate discrepancies.

Regional differences that appear of significance in comparisons between regions include the large percentage (36.2%) of Internet-connected public libraries in the South region that are using State library network Internet connection providers. This contrasts with the relatively large percentage (34.6%) of Internet-connnected public libraries in the West region that are using commercial Internet connection provider services. Differences between the South and West in use of Internet connection service provider may reveal discrepancies in the percentage of Internet-connected public library operating expenditures relating to information and telecommunications services in support of advanced Internet service offerings that are made available to the public.

Table 16
Type of Internet-Connected Public Library Internet Connection Provider by Region

Region	Local	Comercrl	Education	Free-Net	St Libr	Regional	Other
Midwest	20.1%	17.8%	14.2%	8.9%	17.1%	18.6%	10.7%
Northeast	25.1%	14.0%	10.2%	4.8%	22.3%	24.8%	19.0%
South	21.3%	31.4%	16.1%	7.1%	36.2%	12.0%	12.5%
West	21.3%	34.6%	18.1%	5.6%	23.3%	20.1%	9.1%
Overall	**18.5%**	**17.5%**	**11.4%**	**5.7%**	**19.0%**	**16.5%**	**11.3%**

Comparisons between Internet-connected public library use of Internet connection providers by population served as reflected in Table 17 reveal differences between public libraries serving larger community populations and those serving smaller populations. Generally, Internet-connected public libraries serving larger populations are more likely to be using commercial providers of Internet connection services, while Internet-connected public libraries serving smaller populations are more likely to be using State library network connection services or those available through regional or statewide network providers.

Table 17

<u>Type of Internet-Connected Public Library Internet Connection Provider by Population Served</u>

Population	Local	Comercrl	Education	Free-Net	St Libr	Regional	Other
1 million +	20.4%	33.8%	17.6%	14.8%	0.0%	21.3%	26.9%
500,000-999,999	17.5%	41.0%	16.9%	6/3%	9.4%	12.8%	21.0%
250,000-499,999	27.5%	34.9%	8.2%	6.3%	12.6%	28.1%	11.0%
100,000-249,999	16.8%	33.8%	15.5%	9.1%	23.3%	19.7%	15.4%
50,000-99,999	16.8%	33.2%	13.1%	3.9%	21.6%	28.8%	16.6%
25,000-49,999	18.5%	22.0%	17.8%	11.7%	25.5%	18.3%	12.7%
10,000-24,999	23.1%	27.3%	11.5%	5.4%	16.3%	23.6%	18.2%
5,000-9,999	22.1%	17.2%	10.8%	7.5%	20.9%	12.7%	17.2%
Less than 5,000	26.1%	9.1%	14.5%	5.3%	29.0%	18.3%	7.1%
Overall	**18.5%**	**17.5%**	**11.4%**	**5.7%**	**19.0%**	**16.5%**	**11.3%**

G.) Public Access Internet Terminals in Internet-Connected Public Libraries

Tables 18 and 19 provide information from survey responses of Internet-connected public libraries to the following question (see Appendix B question 17):

*Please describe the type AND **number** of your main/central library's public access terminals:*

☐ *Terminals with text-based interfaces (e.g., VT-100 terminals, PCs/compatibles or Macs with terminal emulation software)*

☐ *Workstations with graphical interfaces (e.g., Windows PCs or Macs)*

☐ *Are there additional terminals/workstations just for library staff access?*

☐ *If yes, how many terminals/workstations just for library staff access?*

Table 18

Public Access Internet Terminals in Internet-Connected Public Libraries by Region

Region	%Txt Trmls	%Wk Stns	#Txt Trmls	#WkStns	%Staff	#Staff
Midwest	30.3%	24.8%	4.2	1.6	55.8%	5.4
Northeast	39.1%	21.0%	2.5	0.9	53.1%	3.0
South	30.8%	38.6%	6.5	3.2	73.3%	6.6
West	39.4%	39.0%	11.4	3.5	61.2%	10.5
Overall	**34.5%**	**27.7%**	**4.9**	**1.9**	**58.5%**	**5.5**

Table 19

Public Access Internet Terminals in Internet-Connected Public Libraries by Population Served

Region	%Txt Trmls	%Wk Stns	#Txt Trmls	#WkStns	%Staff	#Staff
1 million +	39.8%	19.9%	109.1	19.8	71.8%	65.7
500,000-999,999	59.9%	37.7%	82.4	26.1	85.2%	75.4
250,000-499,999	40.7%	29.9%	35.5	12.8	77.4%	34.5
100,000-249,999	39.7%	29.7%	11.1	3.8	75%	12.6
50,000-99,999	35.2%	30.3%	7.6	2.9	77.2%	9.0
25,000-49,999	36.0%	34.6%	2.8	1.7	71.2%	5.5
10,000-24,999	33.7%	27.6%	2.5	0.9	68.4%	3.1
5,000-9,999	33.8%	27.3%	0.9	0.6	44.9%	1.1
Less than 5,000	31.7%	22.4%	0.6	0.5	39.5%	0.7
Overall	**34.5%**	**27.7%**	**4.9**	**1.9**	**58.5%**	**5.5**

4.   Concluding Comments

The results of the 1996 survey illustrate that public library Internet connectivity is growing at an extremely rapid rate. Indeed, between 1994 and 1996, public library Internet connectivity increased by 113%. Despite this astonishing rate of growth, the 1996 survey also shows that discrepancies in public library levels of Internet service, types of Internet connectivity, speed of

connectivity, costs for Internet, and in the provision of Internet access services to the public threaten the ability of public libraries and their communities to receive the benefits available through advanced information and telecommunications services.

As more public libraries establish Internet connections and as public libraries are increasingly involved with electronic information services that require high-speed broadband telecommunication services, access to affordable advanced information and telecommunication services will become increasingly important for public libraries to extend new electronic network service access to wider communities. But survey results indicate that as population served decreases, so to does the adequacy of public library Internet connectitity decrease. This includes speed of telecommunications connections, the overall number of Internet access terminals and the graphical capabilities of Internet access terminals.

Initial analysis of the results of the NCLIS 1996 survey of public libraries and the Internet demonstrate clearly the need for the FCC and the Joint Federal-State Board to develop effective mechanisms for discounted services to be made available for eligible libraries. The discrepancies revealed by the NCLIS study highlight the need for mechanisms that will level the advanced information and telecommunications playing field for libraries, schools, and health care providers. Universal service mechanisms must ensure that discrepancies in public library Internet-connectivity type, costs, and levels are eliminated in the future. The Members of the National Commission welcome the opportunity to provide the FCC and the Joint Federal-State Board with an executive briefing in the near future, once the final analysis of the survey results have been completed.

Respectfully Submitted by,

Jeanne Hurley Simon

Jeanne Hurley Simon
Chairperson
U.S. National Commission on Libraries and
Information Science
1110 Vermont Ave, N.W. Suite 820
Washington, D.C. 20005

5. Appendices:

   A. List of Region Groupings

   The region groupings used in this reply comment are as follows:

   Midwest:

   > Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

   Northeast:

   > Connecticut, Maine, Massachusetts, New Hampshire, new Jersey, New York, Pennsylvania, Rhode Island, Vermont

   South:

   > Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

   West:

   > Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

   B. 1996 NCLIS Survey of Public Library Internet Use (Attachment)